

Exhibit 9

THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF PENNSYLVANIA

TAMMY KITZMILLER, et al.,

Plaintiffs,

v.

CASE NO.: 04-2688

(Hon. Judge Jones)

DOVER AREA SCHOOL DISTRICT
and DOVER AREA SCHOOL DISTRICT
BOARD OF DIRECTORS,

Defendants.

COPY

Job No. 1658

Pages 1 - 358

DEPOSITION OF KENNETH R. MILLER, a witness
called by counsel for the Defendants, taken pursuant
to the Federal Rules of Civil Procedure before Dena
M. O'Brien, CSR, and Notary Public in and for the
State of Rhode Island, at Brown University, 171
Meeting Street, Room 212, Providence, Rhode Island,
on May 25, 2005, commencing at 9:00 a.m.

1 therefore we certainly didn't put anything about it in our
2 textbook.

3 Q. When you were writing material on evolution did you add
4 any information on creationism?

5 A. No, we did not. And the reason for that, once again, is
6 there is no scientific evidence that supports the idea of
7 creationism.

8 Now, it's very important to define what one means by
9 creationism. I'm a Roman Catholic, for example, so I believe
10 that the universe was created. So you could always say,
11 ah-hah, that means you're a creationist.

12 But in the modern usage of that language in the
13 United States, the word "creationist" means something quite
14 different other than a person who simply believes in a supreme
15 being and thinks that there is meaning and order and purpose to
16 the universe.

17 In the current usage in the United States,
18 creationist is taken to mean someone who thinks that the Earth
19 is only six to 10,000 years old, that all living organisms were
20 simultaneously created during a very brief period of time,
21 perhaps six days, and that the entire geological record is an
22 illusion, a column of flood deposition from a single 40-day
23 flood that has been misinterpreted for 250 years by the
24 geological sciences as a series, a system of geological ages.

25 For what it's worth, creationists also think that the

1 universe is no older than six to 10,000 years, so therefore
2 they reject the basic scientific underpinnings of cosmology,
3 astronomy, geology, and biology. And because they reject so
4 much of science, I think it's very clear that that version of
5 creationism is not a scientific theory or a scientific idea and
6 therefore we didn't cover it in our book.

7 Q. When you were writing your material on evolution did you
8 add any information on intelligent design?

9 A. No, I did not. And the reason, once again, is because
10 we've been unable to find scientific evidence supporting the
11 idea of intelligent design.

12 And, once again, it's very important to get the
13 definitions right. I think it's fair to say that theists,
14 people who believe in any sort of god, myself included, think
15 that there is in a sense a kind of intelligence to the
16 universe, that we're here for a reason, that all of this is not
17 accidental. But that's different from the contemporary meaning
18 of the word "intelligent design" as it's used in the United
19 States.

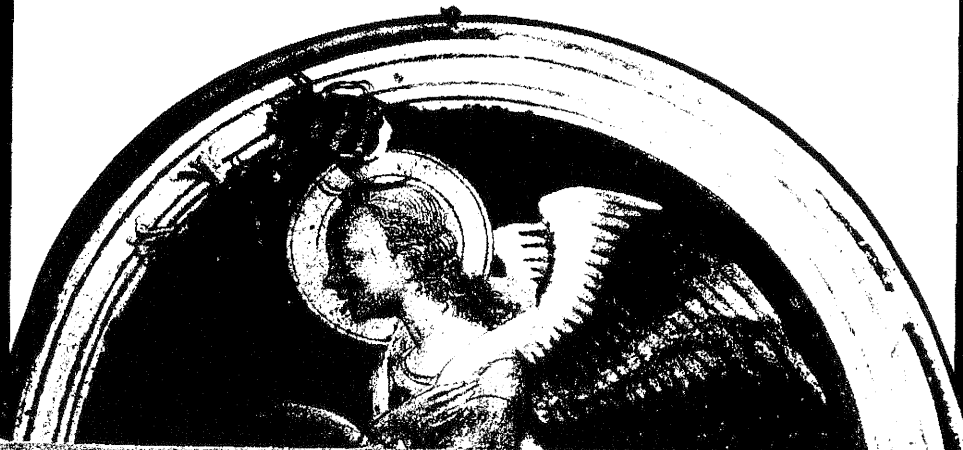
20 Intelligent design theorists, so-called, argue that
21 evolution simply cannot explain the appearance of organisms on
22 this planet and the only way to do that is to posit that all of
23 these organisms were designed intelligently by a supernatural
24 process, a process operating above and beyond the laws of
25 nature. Because the very idea of this kind of supernatural

KENNETH R. MILLER
**FINDING
DARWIN'S
GOD**

**A SCIENTIST'S
SEARCH FOR COMMON
GROUND BETWEEN
GOD AND EVOLUTION**

"Written with sharp wit and in pungent prose, *Finding Darwin's God* redefines the entire debate by showing the true meaning of the science represented by the name of Darwin."

—Jacob Neusner, Distinguished Professor of Religious Studies,
University of South Florida and Bard College



EXHIBIT

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5/25/05 (m)

I agree; in fact, I agree enthusiastically. So let's take a look.

OPENING THE BOX

The challenge that Behe offers to evolution is straightforward, and it comes from an honorable source—Charles Darwin, the man himself. In Chapter 6 of *The Origin*, "Difficulties of the Theory," he wrote:

If it could be demonstrated that any complex organ existed, which could not possibly have been formed by numerous, successive, slight modifications, my theory would absolutely break down.¹⁴

Behe argues that the cell is filled with biochemical machines that are irreducibly complex, and so could not have been formed by those numerous, successive, slight modifications that Darwin required. Therefore, in Behe's view, the theory has indeed broken down. The logical chain of his argument begins with the claim of irreducible complexity, and from it follows the conclusion of design. Here's one example of how he applies that reasoning to a complex, cellular structure like the cilium:

But since the complexity of the cilium is irreducible, then it can not have functional precursors. Since the irreducibly complex cilium can not have functional precursors it can not be produced by natural selection, which requires a continuum of function to work. Natural selection is powerless when there is no function to select. We can go further and say that, if the cilium can not be produced by natural selection, then the cilium was designed.¹⁵

There are many ways to answer Behe's arguments, and most of these have already found their way into print. As a cell biologist, I was particularly amused by a biochemist's suggestion that the complexity of the cilium is irreducible. A cross-section of the kind of cilium Behe has in mind does reveal a structure of exceptional beauty and complexity (see Figure 5.1). Nine pairs of microtubules surround two central microtubules, each joined by an intricate series of spokes and linkers. Because textbooks say that the "9+2" structure is found in everything from single-celled algae to human sperm, a biochemist might easily have assumed that this particular pattern was the only one that worked, hence the conclusion of irreducible complexity.

A phone call to any biologist who had ever actually studied cilia and flagella would have told Behe that he's wrong in his contention that the 9+2 structure is the *only* way to make a working cilium or flagellum. Comparative studies on a wide variety of organisms (as in Figure 5.2) show that there are many ways to make a working cilium or flagellum without some of the parts that Behe seems to believe are essential.

Sperm from the caddis fly *Polycentropus* are different—they have a 9+7 arrangement in which the central pair of microtubules, which Behe believes is essential, is replaced by a cluster of seven microtubules. Mosquitoes of the genus *Culex* don't have a central pair at all—they have just a single microtubule in the center, making them 9+9+1. Eel sperm

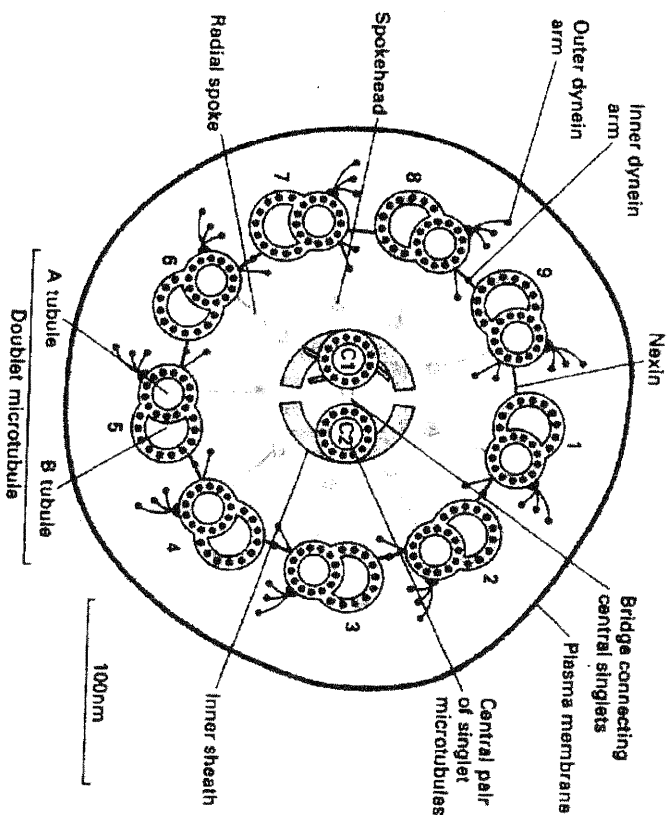


Figure 5.1. Detailed cross-section of a eukaryotic cilium. Cilia are whip-like structures that cells use to generate force and movement. Microtubules, arranged in a characteristic 9+2 pattern, form the core of most eukaryotic cilia. This diagram, from a leading textbook on cell biology, emphasizes the structural complexity of the 9+2 arrangement.

Figure 23-29 (a) from H. Lodish *et al.*, *Molecular Cell Biology*, © 1995, Scientific American Books, New York. Used by permission.

On the Origin of Species. The brief and simple "Recapitulation and Conclusion" summarizes the coherent power of Darwin's great idea. It lays out a few of the most obvious objections to evolution, and shows how easily they are answered. It shows the range of topics affected by evolution, and finally, it presents its readers with a perspective on the immense diversity of life.

By asking my students to read this chapter, I hope to make the point that my beliefs do not depend upon a flaw of evidence or logic in *The Origin*. I want to establish that evolution is something worth learning about, which is my goal even in an introductory class. I hope they will share the author's amazement

that these elaborately constructed forms, so different from each other, and dependent upon each other in so complex a manner, have all been produced by the laws acting around us.

I also hope that they will find the answer to their question in the final sentence of the book:

There is grandeur in this view of life; with its several powers having been originally breathed by the Creator into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most wonderful and most beautiful have been, and are being evolved.³¹

What kind of God do I believe in? The answer is in those words. I believe in Darwin's God.

NOTES

CHAPTER I

1. C. Darwin, *The Origin of Species*, 6th ed. (London: Oxford University Press, 1872, reprinted 1956), p. xxii.
 2. J. Milton, *Paradise Lost*. (New York: Penguin Books, 1968), Book VII, lines 379-384.
 3. *Ibid.*
 4. *Ibid.*, Book IV, lines 304-314.
 5. Darwin, *The Origin*, p. 53.
 6. *Ibid.*, p. 65.
 7. *Ibid.*, p. 80.
 8. D. C. Dennett, *Darwin's Dangerous Idea* (New York: Simon and Schuster, 1995), p. 21.
 9. R. Dawkins, *The Selfish Gene*, new ed. (New York: Oxford University Press, 1989), p. 40.
- Dawkins put it this way: "Another general quality that successful genes will have is a tendency to postpone the death of the survival machines at least until after reproduction. No doubt some of your cousins and great-uncles died in childhood, but not a single one of your ancestors did. Ancestors just don't die young!"
10. R. Dawkins, *The Blind Watchmaker* (New York: W.W. Norton, 1986), p. 6.
 11. E. O. Wilson, *On Human Nature* (Cambridge: Harvard University Press, 1978), p. 1.